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Pressure-Waves.

CAZENOVIA LAKE, or more properly "Owahgena," is about four miles long and half a mile wide, situated twelve hundred feet above sea-level. The outlet issues from one corner, and is a deep curved channel. Two hundred feet from the lake an artificial pond connects with the outlet. A dam at the neck of this pond rises to within four inches of the surface of the water. No ordinary waves reach this point, but it affords an unusually good opportunity for observing the long waves that are evidently caused by varying atmospheric pressure, apart from the frictional force that produces the common waves. When the water is perfectly smooth on each side of this dam, which is protected from wind-currents, it flows with such speed over the dam as to show a decided ripple. The flow is alternately in and out of the pond, which has no other opening, and it changes direction about every five minutes. The change of level is from three-quarters of an inch to an inch.

If the speed of this long low wave is the same as the small swells on the lake, ten minutes from crest to crest would indicate that the crests are about one mile apart, — a very long wave with an inch elevation. The phenomenon is regular for hours, and seems to depend very little upon the force of the wind, showing no connection with the wind's direction. If local storms prevail, the energy of this motion is increased very much in excess of the force of the wind felt on the lake.

The variation of atmospheric weight needed to produce this effect would probably be a little less than an ounce to the square foot, or an inch and a half on a water barometer. It suggests a low-tide rise and fall, with eight to ten minute intervals. It would be interesting to know if more skilled observers have given attention to water indications of air-pressure of this kind.

To-day there is ice on the lake two or three inches thick; the wind south, in strong gusts. At the south end, where the wind is offshore, and at a very sheltered point, I notice, at about eight-minute intervals, a rise of the water made evident by the cracking of the crust that connects the ice with the shore, showing that the long wave acts under the ice in the same way as when the lake is open.

Cazenovia, N.Y., Feb. 2.

L. W. LEDYARD.

Influenza.

I LIVE on the Sioux Reservation, thirty-two miles from Fort Yates, the nearest white settlement. We have had a clear cold

winter, west winds prevailing, few colds, and but little sickness except whooping-cough among children.

Over on the other side of the river, north of this about thirty or forty miles, is a Russian settlement. I have heard continually of late of their having influenza over there. I had no faith in the disease being an epidemic or contagious. A short time ago a few of our Indians went over there trading. We had no signs of the disease here. They returned, and in less than a week one of the families who went were all down with what I thought hard colds. I was called in to treat the cases. In three days, three more strong men were down; and now the whole Indian village is suffering with it, and I am just coming down with it myself. The patients have aching heads, and pain in the side and lungs, the whole body aching as if with ague. They are feverish, troubled with coughing and hoarseness, are restless, and have no appetites, but great thirst. Is it influenza? If so, influenza must be contagious. We have such cold weather, surely disease-germs would not survive; and our winds, being mostly west winds, could not bring disease-germs from the east. This may be of no use to science; but I am so isolated here, — being a missionary among the Indians, and the only white person here, — I thought it might have weight in some direction.

M. C. COLLINS.

Fort Yates, N.Dak., Jan. 24.

Lightning Discharge.

IN response to invitation in the last number of *Science*, I send description of lightning discharge.

In the summer of 1883, when our present public high-school building was nearly completed, but before the lightning-rods were in place, a carved brownstone "finial" in the form of a double cross, weighing about a hundred pounds, which stood on one end of the roof of the building, was struck by lightning. No trace of the lightning was found on any part of the building below this "finial" stone, which was apparently blown to pieces as effectually as if an ounce of gunpowder had been enclosed in its centre, and fired by electricity. It was just before a thunder-shower, but not a drop of rain had fallen. The writer was within twenty rods of the building at the time, and helped pick up the fragments (all of which have been preserved), which were scattered over a space of thirty feet radius.

Was the cloud negative, and did the positive discharge go upward?

Hartford, Conn., Jan. 29.

JOSEPH HALL.



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